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EXAMINER KHIEM D. NGUYEN

Business Phone	(571) 272-1865
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From:	WILLIAM J. ATHAY
Comments:	As discussed in the telephone interview on Wednesday, January 5th, enclosed is an Amendment canceling claims 26-33. Please call if there is anything further that requires clarification. Thanks for taking time to discuss the case with us. W. Athay
Docket No.:	11675.184.1
Serial No.:	10/033,233

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CERTIFICATE OF TRANSMISSION BY FACSIMILE (37 CFR 1.8) Applicant(s): Salman Akram			Docket No. 11675.184.1
Application No. 10/033,233	Filing Date December 28, 2001	Examiner Khiem D. Nguyen	Group Art Unit 2823

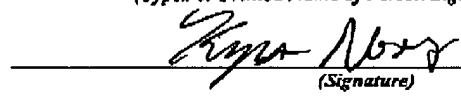
Invention: **CHIP PACKAGE WITH GREASE HEAT SINK AND METHOD OF MAKING**

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AMENDMENT TRANSMITTAL LETTER (Large Entity) Applicant(s): Salman Akram					Docket No. 11675.184.1
Application No. 10/033,233	Filing Date December 28, 2001	Examiner Khiem D. Nguyen	Customer No. 022901	Group Art Unit 2823	Confirmation No. 9685

Invention: **CHIP PACKAGE WITH GREASE HEAT SINK AND METHOD OF MAKING**

COMMISSIONER FOR PATENTS:

Transmitted herewith is an amendment in the above-identified application.

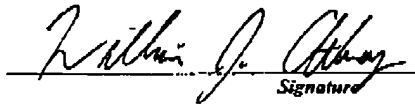
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CLAIMS AS AMENDED

	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST # PREV. PAID FOR		NUMBER EXTRA CLAIMS PRESENT	RATE	ADDITIONAL FEE
TOTAL CLAIMS	10	-	20	=	0	x $50.00	$0.00
INDEP. CLAIMS	1	-	4	=	0	x $200.00	$0.00
Multiple Dependent Claims (check if applicable) ☐							$0.00
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT							$0.00

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- ☐ Please charge Deposit Account No. in the amount of
- ☐ A check in the amount of to cover the filing fee is enclosed.
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Signature

Dated: **January 5, 2005**

William J. Athay
Attorney for Applicant
Registration No. 44,515

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PATENT APPLICATION
Docket No. 11675.184.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of		
	Salman Akram	
Serial No.	10/033,233	
Filed:	December 28, 2001	Art Unit 2823
For:	CHIP PACKAGE WITH GREASE HEAT SINK AND METHOD OF MAKING	
Confirmation No.:	9685	
Examiner:	Khiem D. Nguyen	

AMENDMENT AND RESPONSE

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Advisory Action dated November 19, 2004, please enter the following amendments and remarks into the file of the above-identified application.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

AMENDMENTS TO THE CLAIMS

Claims 1-15 (cancelled)

16. (previously presented) A method of making an IC chip package having a first IC chip with an active surface, the active surface having extending therefrom an electrical connector in electrical communication with the first IC chip, the first IC chip being mounted upon a first side of a board-on-chip (BOC) substrate having said first side that is opposite a second side thereof, the method comprising:

providing a second IC chip having an active surface and being disposed over the first side of the BOC substrate;

providing a container disposed upon the BOC substrate, the container in contact with the active surface of the first IC chip; and

injecting a grease between the BOC substrate and the container;

wherein the grease:

is in contact with the electrical connector and with the active surfaces of each of the first and second IC chips; and

is enclosed within the container and the substrate.

17. (original) The method as defined in Claim 16, further comprising:

providing a third IC chip having an active surface and being disposed over the first side of the BOC substrate and over the second IC chip such that the grease is in contact with the active surface of the third IC chip.

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18. (previously presented) The method as defined in Claim 17, further comprising:

operating the first, second, and third IC chips to generate heat therefrom; and

conducting the heat from the electrical connector and from the first, second, and third IC chips to the grease, to the container, and to the ambient.

19. (original) The method as defined in Claim 16, wherein the grease has:

a thermal conductivity in a range from about 2 Watts/m·K to about 5 Watts/m·K;

a dielectric constant in a range from less than about 6 to about 9; and

a melting point in a range from about 190° C to about 220° C.

20. (original) The method as defined in claim 16, further comprising:

generating heat from at least one of the IC chips by operating said at least one of the IC chips; and

allowing the heat to propagate to the grease and to the container.

21. (previously presented) The method as defined in Claim 16, further comprising:

securing the container to the substrate with a dam structure that contacts the grease.

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22. (previously presented) The method as defined in Claim 16, further comprising:

operating the first and second IC chips to generate heat therefrom; and

conducting the heat from the IC chips and the electrical connector to the grease, to the container, and to the ambient.

23. (previously presented) The method as defined in Claim 16, wherein the grease has a thermal conductivity that is less than a thermal conductivity of the container.

24. (previously presented) The method as defined in Claim 16, wherein the IC chip package comprises IC chip elements, wherein the container disposed upon the substrate encloses a volume external to the IC chip elements, and wherein the injecting a grease comprises filling with the grease the volume enclosed by the container.

25. (previously presented) The method as defined in Claim 16, wherein the container comprises a metal that has a thermal conductivity greater than the thermal conductivity of the grease.

Claims 26-33 (cancelled)

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REMARKS

Claims 26-33 have been cancelled and claims 16-25 are now pending in the present application. Favorable reconsideration of the pending claims is respectfully requested.

Applicant expresses his appreciation to the Examiner for conducting a telephone interview with Applicant on January 5, 2005. In the telephone interview it was agreed that, in view of the Advisory Action dated November 19, 2004, Applicant would submit this Amendment to cancel claims 26-33 to facilitate the allowance of this application. This Amendment is not in response to any substantive rejection of the claims and does not reflect a surrender of subject matter.

In view of the foregoing, Applicant respectfully requests favorable reconsideration and allowance of the present claims. In the event there remains any impediment to allowance of the application, which could be clarified in a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney.

Dated this 5th day of January 2005.

Respectfully submitted,

William J. Athay
Attorney for Applicant
Registration No. 44,515
Customer No. 022901

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